

RADIOACTIVE AIR EMISSIONS MANAGEMENT PLAN FOR LANSCE

Purpose This Meteorology and Air Quality Group (MAQ) procedure specifies LANSCE operational and NESHAP dose milestones and LANL management actions to assure that LANL does not exceed the 10-mrem/year standard of 40 CFR 61, Subpart H.

Scope This procedure applies only to the dose from LANSCE (TA-53) gaseous airborne stack emissions and generally does not apply to other LANL airborne emissions, unless those other LANL emissions are likely to cause LANL to exceed 10 mrem/year.

In this procedure This procedure addresses the following major topics:

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Hazard Control Plan The hazard evaluation associated with this work is documented in MAQ-Office.

Signatures	Prepared by: _____ Dave Fuehne, MAQ Rad-NESHAP Project Leader	Date: <u>6/8/04</u>
	Approved by: _____ Terry Morgan, MAQ QA Officer	Date: <u>6/8/04</u>
	Approved by: _____ Jean Dewart, MAQ Group Leader	Date: <u>6/8/04</u>

09/23/04

CONTROLLED DOCUMENT

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Users are responsible for ensuring they work to the latest approved revision.

General information about this procedure

Attachments This procedure has the following attachment:

Number	Attachment Title	No. of pages
1	DOE/LANL Agreement Signature Page	1

History of revision

This table lists the revision history and effective dates of this procedure.

Revision	Date	Description Of Changes
0	6/27/95	Superseded agreement dated 1/12/93. Changed weekly reporting to monthly. Eliminated automatic cessation of operations at 8.5 mrem.
1	2/5/97	Required monthly report to DOE shifted to higher-dose milestone to reduce excessive reporting. Daily emissions reporting to DOE changed to weekly. LC/GL eliminated from receiving reports. Recast into ESH-17 procedure format.
2	9/17/04	Updated to reflect changes in organizations and personnel, and to include Environmental ALARA requirements; established lowered dose thresholds to compensate for increased emissions from other LANL facilities, including TA-53 RLW system; and added section pertaining to the impact of other LANL operations on this procedure.

Who requires training to this procedure?

The following personnel require training before implementing this procedure:

- MAQ group members assigned to perform calculations or prepare reports supporting this procedure.
- LANSCE personnel who provide emissions information to MAQ.

Training method

The training method for this procedure is “**self-study**” (**reading**) and is documented according to MAQ-024 or the LANSCE training procedure.

General information about this procedure, continued

Definitions specific to this procedure

LANSCE operation: LANSCE is “operating” whenever accelerator beam of any magnitude is being delivered to the beam switchyard or beyond. This definition is appropriate because measurable gaseous emissions can not be produced until this condition is met.

Month: Contiguous time periods corresponding roughly to the calendar months but which may be as short as 2 weeks or as long as 6 weeks. MAQ will establish these reporting periods prior to each calendar year, identifying reporting months for LANSCE emissions. These assignments may be modified at any time provided all weeks are accounted for.

References

The following documents are referenced in this procedure:

- 40 CFR 61, Subpart H, “National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities”
 - MAQ-Office, “General Office Safety, Security, and Computer Responsibilities for All Employees”
 - MAQ-024, “Personnel Training”
 - MAQ-501, “Dose Assessment Using CAP88”
 - MAQ-608, “Monthly Curie Limit Projection for LANSCE”
 - MAQ-609 “Monthly Dose Projection for LANSCE”
 - DOE Order 5400.5, “Radiation Protection of the Public and the Environment,” changed January 7, 1993
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Background

This procedure is intended to ensure that the Laboratory will not exceed the 10 millirem/year requirement established in 40CFR61, Subpart H. Historically, LANSCE stacks have been allowed 8.5 millirem, with 1.5 millirem remaining for other monitored stacks, non-monitored stacks, and non-point releases. With the changes to the TA-53 RLW system having a potential 1.0 millirem dose, and elevated emissions from cleanup of tritium facilities, the administrative limit for LANSCE stacks is being lowered to 7.5 millirem.

When evaluating LANSCE emissions relative to laboratory limits, all these sources shall be included in any analysis.

Milestones, actions, and reports

Overview

This section provides the LANL actions at various operational and environmental dose points. The key management information reports and meetings used to administratively control emissions within 10 mrem are the following:

1. Preoperational LANSCE operating-cycle dose *projections*.
 2. Monthly dose *determinations* based on *actual* emissions.
 3. Monthly updated dose *projections*, if the *actual* 12-month dose exceeds 3 mrem for the most recent past month.
 4. Tracking of *actual* emissions against an administrative emission limit based on 7.5 mrem, if the 12-month dose is *projected* to exceed 5 mrem during the current or next month.
 5. A LANL internal meeting to evaluate maximum expected dose and proposed actions, if the 12-month dose is *projected* to exceed 7 mrem during the current or next month.
 6. A LANL/DOE meeting to determine actions, if the 12-month dose is *projected* to exceed 7.5 mrem during the current or next month,.
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Milestones and actions

Based on each milestone below, carry out the specified actions.

Milestone	Action
Prior to LANSCE operating cycle	<ol style="list-style-type: none">MAQ generates estimated monthly emissions & doses (based on established dose conversion factors) for the upcoming operating year, including likely operating scenarios (if applicable).MAQ notifies the LANSCE Deputy Division Leader for Operations and DOE, projecting the 12-month LANSCE dose by scenario for the operating cycle.If the projected dose is in excess of 3 millirem, consult the chapter on “Environmental ALARA Reviews.”

Milestones, actions, and reports, continued

Milestone	Action
LANSCE is operating.	<p>d. The MAQ staff assigned to LANSCE continuously monitors total stack emissions according to established MAQ procedures, and reports total stack emissions when available after the end of the month.</p> <p>e. Each month, after emissions data are available, MAQ calculates the LANSCE dose for the past 12 months using procedure MAQ-501 and provides the information to the MAQ-LANSCE staff and the LANSCE Deputy Division Leader for Operations, if requested.</p> <p>If the calculated dose is approaching or in excess of 3 millirem, proceed to the chapter <i>Environmental ALARA Reviews</i>.</p>
LANSCE 12-month MEI dose exceeds 3 mrem for the most recent past month.	<p>d-e. As above.</p> <p>f. MAQ provides LANSCE with an updated emissions projection for the current and following month (if scheduled to operate) based on operating schedules provided by LANSCE.</p> <p>g. Using MAQ-609, MAQ projects the 12 month doses for the remainder of the current month and the next month using available actual emissions data from prior months and the projected schedule of operations. MAQ provides the information to the LANSCE Deputy Division Leader for Operations.</p>
LANSCE 12-month MEI dose is <i>projected</i> to exceed 5 mrem during the current or next month .	<p>d-g. As above. DOE receives a copy of the projection specified in item g.</p> <p>h. Using MAQ-608, MAQ projects an emissions limit (in curies), corresponding to a 12-month dose of 7.5 mrem for the month following the month when the dose is projected to exceed 5 mrem and provides the information to LANSCE (if scheduled to operate).</p> <p>i. If scheduled to operate, MAQ tracks emissions to ensure emissions corresponding to 7.5-mrem are not exceeded during the month following the month when the dose is projected to exceed 5 mrem.</p>

Milestones, actions, and reports, continued

Milestone	Action
LANSCE 12-month MEI dose is <i>projected</i> to exceed 7 mrem during the current or next month.	<p>d-i. As above. DOE receives at least a weekly copy of the emissions tracking data specified in item h.</p> <p>j. LANSCE, MAQ, and RRES-DO management representatives meet to determine if the 7.5 mrem administrative limit is likely to be exceeded and the appropriate proposed action if that condition occurs. DOE receives a copy of the meeting minutes.</p>
LANSCE 12-month MEI dose is <i>projected</i> to exceed 7.5 mrem during the current or next month.	<p>d-j. As above.</p> <p>(Item j above should have occurred already and would not be repeated.)</p> <p>k. LANSCE, MAQ, RRES-DO, LANL-DIR, and DOE management representatives meet to determine if continued LANSCE operation is appropriate.</p>

Impact of other LANL operations on these milestones

As stated in the Background section, the milestones set forth here are designed to ensure that the Laboratory will not exceed the 10 mrem/yr requirement of 40 CFR61. To that end, the entire Laboratory exclusive of LANSCE is allocated a total of 1.5 mrem/yr of off-site dose due to operations. Since the milestones herein are designed in consideration of this non-LANSCE dose contribution, contingency plans are required should the non-LANSCE contribution to off-site dose be projected to exceed 1.5 mrem for any reason.

Therefore, if at any time in the calendar year, MAQ discovers that off-site doses from non-LANSCE sources are projected to exceed a total value of 1.5 mrem/yr, then the milestones established herein must be changed to ensure that the 10 mrem/yr site limit is not exceeded. The protocol for any such change is as follows:

For every 0.5 mrem that all non-LANSCE sources exceed 1.5 mrem, LANSCE milestones are each reduced by 0.5 mrem. For example, if the combined non-LANSCE dose is expected to be between 1.5 and 2.0 mrem, then instead of the first dose milestone being 3 mrem of actual dose in the preceeding 12 months, that milestone and consequent actions would be implemented at 2.5 mrem.

Environmental ALARA Reviews

Overview

DOE Order 5400.5 discusses ALARA requirements, as applied to the public and the environment. Implementation of this Order at the Los Alamos National Laboratory requires an ALARA review for operations that may produce a public dose impact of 3 millirem per year or more.

Performing Environmental ALARA reviews

An Environmental ALARA review should be performed in conjunction with the applicable operating group for the operations under analysis.

The following steps should be used as a guideline for planned operations at Los Alamos National Laboratory.

Step	Action
1	<p>Determine if alternative processes could be used, such as different types of treatment to discharge air streams, different operational methods, or different or additional engineering controls.</p> <p>Examples of engineering controls can include the use of HEPA filtration to remove radioactive particulates, charcoal filtration or wet scrubbers to remove radioactive vapors, or delay systems to remove short-lived radioactive gases.</p> <p>One example of an operational change that has reduced LANSCE emissions in the past is establishing a time delay after “beam-off” prior to venting water systems.</p>
2	Determine relative doses to the maximally exposed off-site receptors for the different alternatives discussed in Step 1.
3	Determine relative cost differences for the different alternatives discussed in Step 1.
4	Determine changes in the societal impacts associated with the various alternatives discussed in Step 1. For example, are radioactive discharges to water systems preferable to airborne releases.
5	Compare the estimated emissions and dose impacts with the expected emissions from other operations throughout the Laboratory. Determine if changes to existing “allowed” levels of emissions need to be made at other LANL facilities, to ensure that LANL does not exceed the 10 millirem per year limit for emissions of radionuclides to the air.

Steps continued on next page.

Environmental ALARA Reviews, continued

Step	Action
6	Fully document the decisions made by the operating group and MAQ representatives, and maintain records in the MAQ records center.
7	If possible, incorporate the opinions of public representatives in the decision making process to gauge their response to proposed alternatives. This can be done through public meetings, sampling of populace, the Citizen's Advisory Board, or other methods.

Records resulting from this procedure

Records

The following MAQ records generated as a result of this procedure are to be submitted **within two weeks of generation** to the MAQ records coordinator:

- Preoperational dose projection memo and supporting data.
- Monthly reports of actual dose, projected dose, and supporting data.
- Meeting minutes associated with 7- and 7.5-mrem projections.

The following MAQ records generated as a result of this procedure are to be submitted **within two weeks of generation** to the MAQ records coordinator:


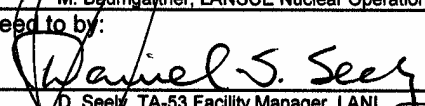
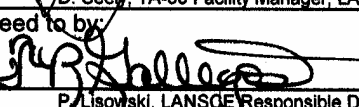
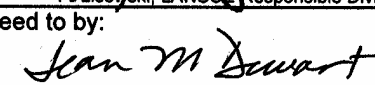
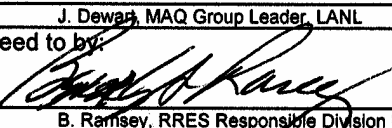
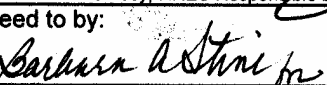
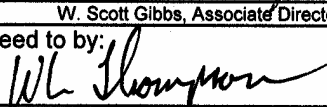

- Emissions projections before and during operation.
- Emissions measurement data.

[Click here to record “self-study” training to this document.](#)

DOE/LANL AGREEMENT SIGNATURE PAGE

RADIOACTIVE AIR EMISSIONS MANAGEMENT PLAN FOR LANSCE

The undersigned LANL and DOE managers agree to the milestones and planned actions specified in this MAQ-610, revision 2, procedure for managing LANSCE radioactive air emissions to assure LANL complies with the 10-mrem/year standard specified in 40 CFR 61.92 (Subpart H) for airborne radionuclide emissions.

Agreed to by:  M. Baumgartner, LANSCE Nuclear Operations Manager, LANL	Date: 8/18/04
Agreed to by:  D. Seely, TA-53 Facility Manager, LANL	Date: 8/18/04
Agreed to by:  P. Lisowski, LANSCE Responsible Division Leader, LANL	Date: 8/18/04
Agreed to by:  J. Dewar, MAQ Group Leader, LANL	Date: 8/18/04
Agreed to by:  B. Ramsey, RRES Responsible Division Leader, LANL	Date: 8/18/04
Agreed to by:  W. Scott Gibbs, Associate Director Operations, LANL	Date: 8/19/04
Agreed to by:  S. Seestrom, Associate Director Weapons Physics, LANL	Date: 8/20/04
Agreed to by:  E. Wilmot, Manager, NNSA/LASO	Date: 8/29/04

This agreement replaces the former agreement dated 2/5/97 and becomes effective on the "effective date" shown on the front of this procedure.